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West Europe Report

SCIENCE AND TECHNOLOGY

(FOUO 15/82)



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BIOTECHNOLOGY

FRENCH RESEARCHERS CLONE INTERFERON GENE

Paris SCIENCE ET VIE in French 5 Jun 82 p 16

[Text] France is working hard to overcome its lag in genetic engineering: on the very day that the Curie Institute in Paris opened a gene cloning laboratory, the Transgene Company and the Roussel-UCLAF Laboratories announced their successful attempt to clone the interferon gene. The cloning was accomplished with the now standard technique of grafting the interferon-producing gene into an Escherichia Coli bacterium.

The Transgene Company declined to reveal the amount of interferon made (measured in molecules), which belongs to the gamma type, one of the three main types thus identified (alpha, beta and gamma). Gamma was chosen because of its anti-cancer properties (it is produced only by the lymphocytes, either after normal antigen-formation stimulus or after stimulation with mutagenic agents (capable of causing mutations in the tissues). We could learn only that the California-based Genentech company had obtained between 8 and 80 molecules from its experiment with E. Coli generation.

This operation is the third in the history of industrial production of interferon: the first to do it was Weissmann, of Switzerland's Biogen company, in 1980; the second was Genentech's Goeddel. It was done under contract involving Transgene, the Roussel-UCLAF company, INSERM [National Institute of Health and Medical Research], the National Institute for Agronomic Research (INRA), and the Curie Institute. It will make it possible to dissipate once and for all the fairly frivolous public statements made by certain celebrity-rated cancer gurus as to the alleged ineffectiveness of interferon.

We may assume that such cloning will very shortly become part of the programs in the new gene-cloning laboratory at the Curie Institute -- the gift, and a very rare event this is -- of a private donor, the Cino Del Duca Foundation. This laboratory boasts a high-security P4-type sealed unit built to higher specifications than those called for under French and international law in the realm of genetic risks.

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One of the teams attached to the new facility, headed by Prof Falcoff, took part in the cloning of gamma interferon. Another team under Prof Fridman has begun cloning immune-system regulators in rats and men. A third team, this one led by Prof. Thomas, is starting to clone enzymes found in lymphocytes.

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ELECTRONICS

FRANCE

AMERICAN SHARE OF CII-HONEYWELL-BULL DROPS TO 19.9 PERCENT

Comments on Actions

Paris LE POINT in French 17-23 May 82 pp 111-112

[Article by Martine Leventer]

[Text] Now it is just a matter of days: Honeywell and CII-HB [International Information Company--Honeywell-Bull], the pillar of the French information industry, are preparing to approve officially the new agreements linking them for 10 years (see LE POINT, no 501). These agreements have an even higher cost than what has been reported. In order to reduce but also maintain the U.S. share in the company from 47 percent to 19.9 percent, not only has the French government agreed to sign immediately a check for \$150 million, but the French company has also pledged to pay under various forms (guaranteed dividends, use of trademark, licenses), \$185 million over a 5-year period.

So this operation is going to cost in all over 2 billion francs. Of course, no one will ever know what it would have cost if Honeywell had pulled out completely and then reinvested its money in a commercial system competing on CII-HB's own hunting grounds. What counts now is the future.

While this solution does give back to CII-HB its freedom of movement, while still giving it a certain amount of continuity in its dealings with Honeywell, it is going to demand of the French firm more dynamism than ever before. If the new agreements are to be a success, CII-HB is going to need top-quality research projects, flawless strategic decisions, improved industrial productivity, and increased commercial dynamism.

Jacques Stern has a hard job facing him. He is the 50-year old new PDG [president and chairman of the board] of CII-HB, and in all likelihood the future chairman of the Bull Machines

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Holding Company. It is true, of course, that this smiling man with steel-gray hair, who is brimming over with energy and excitement about his job, does bring a number of advantages to his new position.

Jacques Stern does know the information industry: he worked on the French air defense system before successfully establishing his own business, the SESA [expansion unknown], which specializes in data transmission networks. He also knows the international market, particularly the United States, where in 1980 he set up a subsidiary--with Honeywell; so he isn't a stranger coming into the company. It is said that the Americans respect his competence and his business acumen. Since he has managed his own company, he has a feeling for money--certainly a necessary attribute if he is to tighten up the ship at CII-HB, which last year lost 430 million francs.

But all this is no absolute guarantee of success: heading a medium-sized business such as the SESA and a large company employing 20,000 people are not one and the same thing. Also, the information industry has now become, more than in the past, a government matter. Will Jacques Stern really be able to be master of his ship? And will he be given the resources to do the job properly? There are at least two serious risks facing him. First, that the government, in a sort of delusion of grandeur, may want to do everything itself. And secondly, that it may not dare give CII-HB the financing it needs, since the amount at stake is so large.

"We are not Don Quixotes," say the people who will have to make the decisions. "We know that choices will have to be made, and some options will have to be dropped so we can concentrate on more promising axes." The essential criterion: the portion of the international market that might be won, based on both existing or future commercial networks.

So some fields such as office automation or some peripherals (equipment connected with computers), rather than personal computers, might be favored. Or, for reasons of technology mastery or strategic purposes, a decision might be made to finance a scientific computer, but without getting involved in international sales. There are a great many choices being discussed with the company, which Pierre Dreyfus should be presenting to the council of ministers before July.

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Financing? "It will be provided, since the president wants it. We will be able to put the financial package where it is needed," claims a top official. Apparently they have managed to convince Jacques Delors and Laurent Fabius that the information industry is an essential factor in France's economic independence, and one which will largely determine whether the balance of payments will be restored to equilibrium. This argument also holds true for all of the electronics industry, as Jean-Pierre Chevenement said last week, while releasing to the press the report of the Electronics Mission.

Let's see. Just for CII-HB alone, between now and summer 2 billion in capital will have to be invested. After that time, the financing needed will start to add up: 200 million francs a year due to Honeywell; capital increases of 200 to 300 million francs a year if they want to maintain the rate of growth; and money for research contracts for products they would like to add to the present line.

Even if this bill does seem high, we have to realize that, until the present--contrary to what people tend to think--CII-HB has never been given the money it needed to get established on a really solid footing--while at the same time over 2 billion francs a year was quietly being spent on space. It is actually a miracle if, under these conditions, France, which has only 5 percent of the world market, is now in any condition to have ambitions at all!

It still remains to be seen whether the government, while properly playing its role as a stockholder, will not try to interfere with the domain of industry. "Instead of wondering what the government thinks, I would like the people in industry to tell me what they want to do, and how they expect to make it a viable operation in economic terms," says Loik Le Floch, the staff director for Pierre Dreyfus.

So does everything look rosy for CII-HB? Certainly not. For it is going to be tested in the international market. And that is a tough league to play in!

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Interview with CII-HB Head

Paris LE POINT in French 17-23 May 82 p 112

[Interview with Jacques Stern by Martine Leventer]

[Text] Question: You are coming into a company which has had some uncertainties hanging over its future. What are your priorities going to be?

Answer: First of all, I want to say that this company is not in the mess that some people claim. Of course, it does need to make some progress; because of circumstances (the influence of the stockholders, then the length of the negotiations with Honeywell), there have been some problems in making important decisions, and that happened on more than one level. Also, successive mergers have left the company with a certain amount of administrative clumsiness. So I am going to try to simplify the organization, to set up faster and more decentralized decision-making procedures. From this I expect to get a greater degree of dynamism and productivity.

We are also going to have to increase the quality of the service we give our customers very quickly--I am going to pay very close attention to that on a regular basis.

But my most urgent job, the one that will absorb most of my attention, will be to prepare for the strategic decisions we have to make in terms of products and markets. We can't make a mistake there, because that could definitely endanger our future.

Question: Here you are at the helm of a ship 20 times larger than the one you were handling. Doesn't that frighten you?

Answer: Well, I do know the job. My goal at CII-HB is the same as my goal at the SESA: to develop our national competence, by favoring a long-term strategy within an international market context. And what matters is not the number of employees the business has, but the quality of the staff with which I will be working directly. Here I am convinced of the solidity of the staff, of their desire to cooperate with me, and of their very high quality. I may perhaps add to the staff, but I will be making very few changes. Also, I do plan to augment the

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research staff, to bring in new blood, and also to develop to the maximum cooperation with French research organizations. But on the whole, I do feel that we have the human resources to meet our goals.

Question: But will you also have the financial resources, and the autonomy to make your own decisions?

Answer: I do hope to have the financing we need. If I have that, I am convinced that I will also have the autonomy, and that the government will not interfere in my management and strategy, and that I will be judged on the results I produce. That is a more comfortable situation than the situation of this company in the past: its industrial stockholders not only never gave it the capital it needed to develop on a healthy basis (our rate of indebtedness is 10 times higher than that of our U.S. competitors), but they even intervened in strategic decisions, to block them!

Question: Still, you are going to have to become part of a national strategy, which could cause some problems of infringing on the territory of other nationalized companies.

Answer: I am sure that the government expects us to be able to work together, to coordinate, and cooperate, and that it will only intervene if we can't manage to get along. This is going to be quite complicated, you are right there. But this sort of dialogue between industrial leaders seems a normal thing to me. I have already begun talking with Alain Gomez, the PDG of Thomson.

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ELECTRONICS

AEG-TELEFUNKEN RESEARCH, DEVELOPMENT ACTIVITIES

Sundbyberg MODERN ELEKTRONIK in Swedish 7 May 82 pp 52-53

[Article: "One Billion DM Annually for R&D"]

[Text] Research and Development at AEG-Telefunken will cost just over 1 billion DM this year for the development of alternative energy sources, telecommunications, speech and text processing, and the development of components in the fields of industrial and telecommunications technology, among other things. The development will be centered at AEG Telefunken in Ulm. This was indicated at technical information sessions held late last year.

After the war a small group of employees remaining at a vacuum tube plant in Lodz founded the present factory in Ulm. Today this division of the company is the second largest employer in Ulm. About 5,000 of the 10,000 employees at AEG-Telefunken are active in the production and development of components and electronic equipment of various types in Ulm.

The vacuum tube division now has about 2,000 workers producing and developing various types of special tubes for telecommunications, including TWT tubes for satellite equipment.

To further concentrate research and development, semiconductor research previously conducted in Heilbronn has been moved to the research center in Ulm. For some time semiconductor research has been on the back burner, but now it has intensified again. Thus, in 1981 AEG-Telefunken spent 1 billion DM for all research and development.

Recently the question has been asked: "Can we at AEG-Telefunken meet all the demand for special semiconductors or circuits, even though we already produce specialized types of semiconductors?" One solution to the problem was to establish a center for CAD integrated circuits.

The research institute at Ulm is not occupied solely with semiconductor research and development, but also is active in areas in which the semiconductors are used, for example telecommunications and computer technology.

Alternative energy technology and various methods of energy conservation also

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are studied.

Automotive Electronics and Energy Technology

In the field of automotive electronics, circuits are being developed for electronic ignition systems and idle stabilization, as well as various circuits to indicate fuel consumption and start-stop systems.

In the field of energy, several solar energy projects are at an advanced stage and new solar cells are being developed for this purpose. Alternative energy sources also are being examined, for example the use of biomass and wind energy. Research on these systems also includes the problem of storing the energy produced and examining and developing methods of controlling storage and utilizing the stored energy.

Communications Technology

A relatively new system of speech identification and speech communication has been designed primarily for controlling robots. A totally new system of speech identification is being developed at the same time.

If the computer cannot identify the speech of a test individual, a "ghostly" conversation occurs in which the machine asks the human to repeat what he has said or say some additional words or sentences. If the speech is not identified properly the computer says, "Do not understand--continue or repeat," until full identification has occurred.

Semiconductor and CAD Development

Since projects such as those described above require semiconductors and special circuits, in both cases there must be intimate cooperation for the development of new semiconductors. For this reason, the development of all integrated circuits has been moved to the research division in Ulm.

In addition to developing circuits for internal use, the company also plans to cooperate closely with the West German electronics industry and produce integrated circuits to meet the needs of that industry. West Germany imports IC's for about 8.5 billion DM from the United States and about 4 billion from Japan, while producing circuits worth only about 1.7 billion DM itself. In other words, domestic production meets only a fraction of domestic needs. For this reason, German authorities would like to see an increase in the production of integrated circuits.

The semiconductor division is organized in such a way that the development of new circuits and CAD activity occur at the AEG-Telefunken Forschungszentrum in Ulm, while the production of standard circuits and further development are carried out at the Heilbronn factory. A new semiconductor plant also is being planned in Heilbronn.

The semiconductor technologies most widely used at AEG-Telefunken are PMOS,

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NMOS, CMOS, I²L, and CCD. In certain special circuits a combination of these techniques is used. Thus, an entirely new series of circuits has been developed for the electronic equipment used by Telefonbau und Normalzeit in its electronic telephone exchanges.

There are two main trends in the development of integrated circuits. The first includes systems design and is characterized by cooperation between those who develop circuits and various designers of electronic equipment. The other extremely important aspect from mask production to completed circuit requires several technological steps. A special developmental laboratory for test production is available for this portion of the manufacturing process.

Normally, various types of simulation programs are used for proving the circuits that are developed. The finished layouts are sent to the semiconductor plant in Heilbronn for the production of masks and so-called reticles.

Masks are produced both photolithographically and, to a limited extent, by electron-beam lithography. The latter method is limited, however, because of the difficulty involved in producing sufficiently sensitive photoresistors.

In the so-called front-end process liquid-phase epitaxial production is used in addition to a high-vacuum molecular beam process, depending on what semiconductor type is being produced.

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TRANSPORTATION

FRG AEROSPACE INDUSTRY REVIEWED AS HANNOVER SHOW OPENS

Paris AIR ET COSMOS in French 15 May 82 p 29

[Article: "The 1982 German Aerospace Industry"]

[Text] The German aerospace industry, in terms of annual turnover and number of employees, ranks third among European aerospace industries, after the French and British ones.

Third-Ranking European Industry

The German aerospace industry's total annual turnover in 1981 has not yet been made public. It is almost certain to be in the vicinity of 10 billion DM, or over 25 billion francs. Systems (airframes and missiles) figure predominantly in this total, accounting for more than two-thirds of it. Engines make up only around one-tenth of the turnover and equipment around one-fifth.

The German industry's permanent employees totaled around 73,000 persons at the end of 1980, more than 47,000 of whom were assigned to the design and fabrication of airframes and missiles, almost 9,000 to the engines sector, and almost 14,000 to the equipment sector.

Predominance of MBB

The industry's structure is characterized today by the massive predominance of MBB [Messerschmitt-Boelkow-Blohm] whose payroll, following its absorption of VFW [United Aeronautical Company] totaled close to 40,000 persons, that is, definitely more than half the total for the industry as a whole, and whose annual turnover is around 4.6 billion DM. MBB has extremely diversified activities covering civil and military aircraft, helicopters, tactical missiles, space and other than aeronautics. This observation is true also of Dornier, which employs around 8,000 persons and has an annual turnover of over 1 billion DM.

Dornier is seemingly determined to remain independent of MBB, which for its part has committed itself with equal determination to a policy of international cooperation on a non-exclusive basis; but for the two big German firms, cooperation

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with French industry covers a very broad spectrum: Airbus and Transall transport planes, tactical missiles, satellites for MBB, and Alpha Jet and Atlantic for Dornier.

Both these firms specializing in systems devote very substantial funds of their own to design and development.

The engine sector is dominated by MTU [expansion unknown], which works in close all-round cooperation with seven foreign engine builders: Pratt & Whitney (2037), General Electric (CF 6), Rolls-Royce (RB 199 and Tyne), SNECMA [National Aircraft Engine Study and Manufacturing Company]-Turbomeca (Larzac/MTM 385), and Allison (250 C 20 B). MTU's annual turnover exceeds 2 billion DM. This firm's study and maintenance activities are also growing.

Germany's aerospace equipment industry is essentially distributed among the specialized divisions of three large industrial groups: Siemens, AEG Telefunken, SEL [Standard Elektrik Lorenz]; Rohde and Schwarz is a special case. This sector has suffered from the fact that the prime contractors, with which the government deals, are tending to keep some of the work of studies, development and integration of equipment within their own establishments.

Exports represent considerably less than half the annual turnover of the German aerospace industry versus foreign sales of weapon systems hardware. This policy, which has hampered cooperation, is now being modified.

Two Major Programs: Tornado and Airbus

Two major programs currently dominate German industrial activity. In the military domain, there is the tripartite Tornado program, under the aegis of PANAVIA [expansion unknown], which is a manna for German industry (MBB) because of the immediate workload it brings to it, but which is at the same time a burden to the extent to which this program punches a massive hole into military credits--thus retarding the launching of new developments--and because the reduction in manufacturing output rates imposed by the cost of the program (German production has been reduced from 60 to 42 planes per year to cut expenses) poses an undeniable industrial problem. In the civil domain, German industry participates, under the aegis of Airbus Industrie and through the Deutsche Airbus group (MBB), in the Airbus program, under which it shares to the extent of around 38 percent in the A 300 and A 310 programs. The reticent attitude of German authorities toward the A 320 program, however, will probably result in a reduction of the German participation in the latter program to 20 percent.

German industry also occupies a position in the domains of military trainer aircraft (Alpha Jet, linking Dornier and Dassault-Breguet), tactical missiles (cooperation between MBB and AEROSPATIALE [National Industrial Aerospace Company (Fr)] under Euromissile), satellites (cooperation between MBB and AEROSPATIALE), and space (Spacelab).

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Noteworthy are MBB's innovative developments in the field of helicopters and those of Dornier in that of supply planes. These activities illustrate the creativity of the German aerospace industry.

A Survival Problem

For the German aerospace industry, the fundamental problem is that of its survival beyond the major programs now in progress: Tornado, Airbus A 300, Airbus A 310, Alpha Jet, Spacelab, etc. This problem is a present one for the design study departments, the remarkable capabilities of which are already being underutilized and are on the verge of being dismantled if they do not very soon receive sustenance in the form of new work to be done toward the launching of additional major programs. But as more and more orders are filled for Alpha Jets, Tornados and Airbuses, the manufacturing sector will inevitably be affected. MBB is already planning a staff reduction of 4,000-4,500 persons among its permanent employees over the next 4 years.

The German authorities, invoking their budgetary difficulties, are meting out more and more tightfistedly their support of studies and developments, and are pressuring industry to provide more and more of its own financing. German industry today, however, absolutely needs to go beyond its current undertaking under the Airbus A 300 and A 310 programs into launching a new airliner program, actualizing the PAH-2 combat helicopter program, and preparing a new fighter plane successor to the Phantom.

These new programs, on which the future of the German aerospace industry depends, are certain to be very much in the spotlight next week when the Hannover Show opens.

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TRANSPORTATION

HANNOVER SHOW WILL HIGHLIGHT EUROPEAN COOPERATION

Paris AIR ET COSMOS in French 15 May 82 pp 43-45

[Excerpt] Although those not exhibiting are numerous--some of them top-ranking builders, like Fokker--the 14th Hannover Aeronautics Show nonetheless provides visitors with an impressive view of the power of European industry, which is self sustaining in the domains of transport planes, combat planes, helicopters, small gas turbines, and missiles. Its real weak point, at least in the civil aviation sector, is turbojets: Rolls-Royce undeniably still holds a strong position in this domain with its RB-211 family, but cooperation with the engine builders (American) remains essential for the others; it at the very least ensures dependability of supplies and even places Europe in a good position in the case of the CFM 56's as well as in that of the RJ-500's if the latter goes beyond the exploratory stage in which it now finds itself.

The standard European combat plane is of course still the Tornado of the PANAIA [expansion unknown] consortium. The 100th of these planes was delivered on 31 March, they are in service in the three countries that build them, and the only shadow darkening the picture is that of the cost overruns and stretching out of the program, both these factors being interlocking. The production rate is now stabilized at 110 planes a year, which is very close to the originally planned one. But the Tornado, in view of the fact that its export prospects are extremely poor, will come to an end in 1989.

Will European industry have found an ongoing program to take its place by then? Perhaps an effort could be made at working out something between Dassault and MBB [Messerschmitt-Baldow-Blohm]--the creativeness of the one and the industrial capacity of the other (underutilized) could not but gain from each other--for example, around an experimental twin-jet prototype that could prefigure the combat plane of the 1990's. But the governments--and the general staffs--will have to commit themselves...

Cooperation in the aviation domain is not limited, however, to the military domain alone. On the contrary, it has found a fertile terrain for remarkable yields in Airbus Industrie. The presence at Hannover, on 17 and 18 May, of the all-new Airbus A-310 prototype attests to the vitality of the German, Belgian,

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British, Spanish, French and Dutch builders associated in the operation. With 507 planes placed among 44 airline companies (327 A-300's and 180 A-310's), 175 A-300's delivered, a production rate exceeding five planes a month this year, an A-310 testing program that has gotten off to a remarkable start, and a number of projects in progress (A-320, TA9, TAl1, etc), all designed to expand its product line and hence its market positions, Airbus Industrie finds itself virtually alone confronting gigantic Boeing--a situation that might have been deemed totally improbable only 2 years ago... And with the help of its governmental backings, the European consortium is certain to be able to withstand more easily than Boeing the impact of the current slump in air transport, which is producing nothing other than cancellations of orders and postponements of deliveries. A sole regret: That Fokker, not exhibiting at the Show, continues trying to be the lone horseman in the domain of 150-seaters--wherein the bringing together in full of all the European capacities would not be overly adequate to overcome the hegemony of the B-727 and the B-737--and that it has not yet been possible to come up with any solution that would ensure the European engine-building industry a position as major participant in the launching of the engine that is to equip this same plane...

In the domain of regional transport planes, AEROSPATIALE [National Industrial Aerospace Industry(Fr)] and AERITALIA [expansion unknown] will of course exhibit the very attractive accommodations model of the ATR 42, a program the launching of which has now been decided. The CN-235 (CASA [expansion unknown]-Nurtanio) is not being exhibited, but is certain to be at the next show. SAAB [Swedish Aviation Company] in association with Fairchild (Commuter 340) represents the third European entity to have decided to compete in the regional transport market. And not to be forgotten are Fokker's plans with regard to the modernizing of the F-27. In this domain as well, Europe is a match, and even more, for the United States.

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TRANSPORTATION

MANY MAJOR COMMUTER PROJECTS TO BE EXHIBITED AT HANNOVER

Paris AIR ET COSMOS in French 15 May 82 pp 33, 35, 37

[Article by Regis Noye: "Extensive Space Reserved for 'Commuters'"]

[Text] This is without question the first time regional transport planes, so-called "commuters," will occupy so much space at Hannover: Some 12 of these planes have been entered into the static exhibit, and several stands will feature presentations on the advanced state of major programs under development. This is in no way surprising if one considers the growth that has taken place in this sector of the aeronautical industry over the past 2 years. It was in 1979 that a substantial world market (estimated by some at 5,000 units between now and the year 2000) for planes with seating capacities generally within the range of 15 to 50 seats first made its appearance. This demand, half of which was based in the United States, undoubtedly developed after several years of an American deregulation policy, coupled with a constantly rising cost of fuel. The result was an immediate rush on the part of builders to capture a share of the market on an individual or cooperative basis, and there are more than some 15 of them today heavily committed to it.

Based on the requirements of the market, the specialists have drawn a sharp distinction between planes with a seating capacity of more than 30 and those with a lesser capacity. Many existing planes were already of the latter category, requiring only modifications or modernised versions. The so-called "new generation" ones, on the other hand, could benefit from the recent advances made in the domains of engines, materials, aerodynamics, equipment and avionics, and it is in this category that five programs, already launched and some now at a very advanced stage, stand out either because of the size of the investments involved or because of the capacity of the planes involved. These are: the ATR 42, developed jointly by AEROSPATIALE [National Industrial Aerospace Company] and AERITALIA [expansion unknown]; the Saab Fairchild 340; the Embraer-120 "Brasilia"; the Dash 8 by Havilland Canada; and the CASA [Aeronautical Manufacturing Co/Nurtanio-235]. Of these, only the first three are being represented at Hannover (most of the builders, moreover, not exhibiting at the Show--among them, some of the "big" ones such as Havilland, Fokker, Shorts and CASA--are to be found in the "commuters" domain).

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The ATR 42

The ATR 42 passed a significant milestone with firm orders from two American airlines: Ransome Airlines (six planes configured for 46 passengers) and Command Airways (three planes), announced on 8 and 12 April. Finnair, for its part, has decided to buy at least five ATR 42's, and this decision, after approval by the Finnish company's board of directors, will be announced very shortly. AEROSPATIALE and AERITALIA have formed the "ATR" GIE [Economic Interest Group] to steer the program and handle its marketing. The intergovernmental agreement, signed recently, gives this program an official character. Marked interest has also been shown in a future "stretched" version, the ATR XX, capable of transporting 54 to 58 passengers. The two versions currently being offered are the ATR 42-100, with a takeoff weight of 14.7 tons and capable of carrying 42 passengers a distance of 1,300 km, and the ATR 42-200, 15.5 tons at takeoff and a carrying capacity of 49 passengers over a distance of 1,450 km. The two prototypes will fly in August and October 1984; in-service dates are scheduled for the fourth quarter of 1985. The principal equipment choices have been: PW 100/2 engines, Hamilton Standard propellers and Messier-Hispano-Bugatti landing gear; these are final. Lastly, the study of the cargo, civil and military versions is under way; it will broaden even more the market for this plane.

The Saab-Fairchild 340

The SF 340, having been the object of a cooperative program between Saab-Scania and Fairchild Industries that was announced officially at the end of 1980, is currently the most advanced toward completion among the five competitors: Its roll-out has been very precisely scheduled for 27 October this year, and is to be followed by the first deliveries at the start of 1984. All the plane's characteristics and performance ratings have thus been frozen since November, when the construction as such actually started. The SF 340 is characterized by the importance that has been given to the economic factor, by way of application of state-of-the-art techniques: Modern General Electric CT7-5 (1,675 hp) engines; Dowty Rotol 3-bladed, composite propellers; use of cements in the assembly of components; use of sandwich composites; digital avionics; fuel management system. Two versions are planned: The 34-seat "Airliner" (11 rows of 3 seats each plus 1 row of 4 seats aft, at 30-inch spacings) and the 12- to 16-seat "Executive." For the first of these versions, maximum rated cruising speed is 507 km/hr and cruising distance (with 34 passengers and IFR [Instrument Flight Rules] reserves) is 1,670 km. Orders for the SF 340 now total 111 units (firm orders and options), 15 of which are for the "Executive" version.

The EMB-120 "Brasilia"

The EMB-120 "Brasilia" appears clearly to be the SF 340's direct competitor, these two planes being the only two in the 3-seat-abreast category, Embraer has scheduled the prototype roll-out for 10 July 1983 and the first deliveries for 1985. According to the most recent information released by the builder, the characterization of the plane is now complete and wind tunnel testing more than 80 percent complete. The latest "engineering" model, a so-called "Class 3"

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model built of wood and metal, is currently in the finishing stage, but the first components of the prototype are already in the machining stage. The Brasilia, it will be recalled, is to be equipped with two PW 115 turboprop engines, each rated at 1,500 hp at take-off, and has a capacity of 30 seats (at 31-inch spacings). Firm orders now total 70, to which must be added many intentions to buy.

The Less-Than-30-Seaters

The less-than-30-seater category of commuters being exhibited at Hannover, and for the first time in Europe, features the greatest number of new planes. On the parking apron, one can see the Beechcraft C99, the Piper T-1040 and the Metro III, which have already made their initial appearances at the fall "convention" of the RAA [Regional Airlines Association] held in New Orleans in November. Flanking them are representatives of each of the Dornier Do228's (the -100 and -200 versions), the Bandeirante EMB 110 P1/41 recently sent to Paris for the exhibition there, as well as a scale model of the cabin (and cockpit) of the Jetstream 31 by British Aerospace. The Beechcraft Commuter C99 is a modernized version of the former Model 99 "Airliner" built by the company between 1968 and 1975. It is equipped with two Pratt and Whitney of Canada Limited PT6A-36 turboprops derated to 715 hp and can transport 15 passengers at a maximum speed of 480 km/hr over a distance of 1,700 km with IFR reserves. The plane received its certification in July and is now being mass produced at an average rate of two units per month, which is to be increased to five units per month by the end of this year. According to the builder, the number of orders on the books will absorb production until the end of 1983. Beechcraft is expected also to announce shortly the start of tests on its Commuter 1900, equipped with two 1,000-hp PT6A-65B engines and having a capacity of 19 seats, whose characteristics and performance ratings were published in November (see AIR ET COSMOS, No 882, p 35).

Already ordered by several European companies, the Piper T-1040 will start a wide-ranging exhibition tour at Hannover that will take it throughout Western Europe and into Africa. Together with the T-1020, these two programs were announced at the last Bourget Show and translate Piper's intent to enter the world commuter market. While the first of these is but a derived version of the Chief-tain, adapted to the transport of 9 persons, the second, with the same capacity, makes use only of the fuselage and takes over many components of the Cheyenne 1, including its airfoil, engines (2 PT6A-11's derated to 500 hp), nose cone and empennages. Its cruising speed is 440 km/hr and its cruising distance is 1,240 km (under full load) at 3,000 meters. The T-1040 received its American certification on 5 March, and its first deliveries are scheduled for April.

The Metro III, for its part, built by Fairchild Swearingen at a current rate of around three units per month, represents the most recent commuter (19-passenger) version of the Merlin IVC twin-turboprop business plane. For a long time now, it has been the only American plane of this capacity on the market (and will remain so until the Beech C99 makes its debut). The Metro III is equipped with two Garrett AiResearch 1,000-hp TPE 331-11U-601 G turboprop engines. Its maximum cruising speed is 510 km/hr and its cruising distance (fully loaded) is 1,150 km.

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Dornier comes off well with its two new twin-turboprop small transports, the Do 228-100 (15 passengers) and the Do 228-200 (19 passengers). We briefly recall that these two planes are derived from the former twin-engined Do 28 and are characterized by their so-called TNT (new-technology) airfoil, which was conceived initially for a higher-category commuter project baptised the LTA. (With a 30-seat capacity, this project is still under study at Dornier.) Developed rapidly by the German builder since the spring of 1980, the Do 228-100 received its German certification on 18 December, while that of the Do 228-200 appears imminent now. Both planes are equipped with Garrett 715-hp TPE 311-5 engines. Their maximum cruising speed is 432 km/hr and their cruising distances are respectively 1,970 km (-100 version) and 1,150 km (-200 version).

For the first time, at Hannover, Embraer is exhibiting jointly with Aero-Dienst, its German distributor, a Bandeirante EMB 110P1/41. This small Brazilian commuter (18 seats), whose reputation needs no introduction here, is continuing its brilliant career: Its builder has announced its having broken through the 400-planes-delivered mark (65 in 1981 and a total of 75 in the United States), and states he is sure now of reaching the 500 mark. The EMB, it is recalled, is equipped with two 750-hp PT6A-34 engines, and in its P1/41 version (take-off weight 5,900 kg, of which 1,633 kg is payload) its cruising speed is 410 km/hr and its cruising distance 1,852 km.

Also for the first time, at Hannover, British Aerospace is exhibiting a very beautiful scale model of the cabin of the Jetstream 31, a modernized version of the former Jetstream TK1 and configured to carry 18 passengers. The first production-line unit, which was rolled out on 25 January, commenced its flight tests on 18 March, thus joining the prototype (whose first flight goes back to February 1980) in the test program that is to be completed in May with simultaneous British and American certifications. First deliveries are scheduled to take place in July. The Jetstream 31 is equipped with two Garrett 900-hp TPE 331-10 turboprops. Its cruising speed is 480 km/hr and its cruising distance is 1,200 km.

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TRANSPORTATION

ORDERS FOR ATR 42 NOW REPRESENT 6 AIRLINES

Paris AIR & COSMOS in French 5 Jun 82 p 16

[Article by J.M. : Colombia's Aerocesar Picks ATR 42. Six carriers committed to buy 28 of the aircraft]

[Text] Everybody expected that the sixth customer for the ATR 42 twin-turbine aircraft would be either Air Caledonia or Scheduled Skyways (cf. AIR & COSMOS n° 908, pl6): as things have turned out, it was the Bogota-based Aerocesar company that followed Ransome, Command Airways, Wright Airlines, Air Littoral, and Finnair in placing its order -- actually the fifth if you count from the date of signature: 12 May (Air Littoral signed its firm order on 14 May).

Aerocesar, which serves a number of domestic routes in Colombia, mainly operating out of Bogota, Medellin, Baranquilla, Cartagena, and Valledupar, signed a firm order for two aircraft, with delivery promised for August 1986 and May 1987. The configuration selected calls for 42 seats, with the 2-seat rows separated by a 32-inch aisle.

The GEI Regional Transport Aircraft Company (Aeritalia and Aerospa-tiale), which released the information on 28 May, had also confirmed a day earlier that the contract with Finnair signed in Paris on 21 May (calling for five ATR-42s equipped to carry 46 passengers and slated for delivery beginning early in 1986) had been approved by that company's board of directors on 20 May. Finnair, which was the third export client for the Caravelle, thus became the third buyer of the Franco-Italian turbojet. Finnair's ATR-42s will replace its Fokker F-27 Friendships.

Aeritalia and Aerospa-tiale have thus sold 28 ATR-42s to six carriers. That number will probably be rising very shortly to 38 aircraft and 8 carriers when the builders are in a position to announce firm arrangements for talks with Air Caledonia and Scheduled Airways.

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We can also report that the Aerocesar order is interesting for a number of reasons: first, because this company is the first buyer based in Latin America. Second, because this client and the geographical location of the country involve some very demanding operating conditions. Their choice of the ATR-42 is thus one more bit of proof of the aircraft's performance and ruggedness.

It is interesting to note, on this count, that the ART-42 is not underpowered (as the head of one airline company recently asserted), but is actually higher-powered than its leading competitor, the F-27. A quick comparison of the specifications (surface, mass, power) of these two aircraft yields the following answers:

-- F-27 200 and 500: 70 square meters; 20,412 kilos at takeoff; maximum P/S 291.6 kg/m²; mass/power at takeoff: 4.77 kg/SHP;

-- ART-42: 54.5 m²; 14,715 kg (ATR-42-200); max P/S: 270 and 285 kg/m²; mass/power: 4.08 and 4.32 kg/SHP.

Nominal performance specifications are heavily weighted in favor of the ATR-42, thanks to the light weight of its airframe (operational empty weight 9,295 and 9,335 kg as against 11,578 and 12,243), and to its margin of power: takeoff and landing distances slightly shorter, ceiling on one engine higher by 1,700 feet (13,400 as against 11,700), cruising speed higher by around 30 km/hr. As for fuel consumption, it will be far more profitable, since it is less by around 35 percent over a typical 385-km leg. This difference is of course the result of the gain in its empty and laden weights, of aerodynamic improvements, and of the high performance of its PW/100-2 turbo engine.

Orders for the ATR-42

8 April Ransome Airlines; 6 firm orders; first delivery November 1985 (.S.)
 14 April Command Airways; 3 firm orders + 2 options; first delivery in 1986 (U.S.)
 21 April Finnair; 5 firm orders; first delivery, early 1986 (Finland)
 12 May Wright Airlines; 8 firm orders; first delivery early 1986 (U.S.)
 12 May Aerocesar; 2 firm orders; first delivery in August 1986 (Colombia)
 14 May Air Littoral; 2 firm orders; first delivery in October 1985 (France).

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TRANSPORTATION

BRIEFS

AIRBUS SALES, TESTS-- Even as tests of the A-310 go forward, deliveries of the A-300 are also continuing at a rapid rate. Thus, at the beginning of this month, Airbus Industrie had placed 172 planes in service, the latest being an A-300 B2-200 with General Electric engines delivered to Iran Air (Which has firm-ordered six A-300 B2's and holds options on three additional planes). Iran Air, as of the end of 1981, was already using two A-300 B2's. As of 31 December 1981, Airbus Industrie had delivered 158 planes (48 A-300 B2's, 110 A-300 B4's), in service now in 27 airline companies. Deliveries during these first four months have totaled 17 planes (2 in January, 9 in February, 2 in March, 4 in April). The total number of planes now in service should therefore be 175; this total, however, should be reduced--temporarily--by three, the first three A-300 B4's delivered to Laker, a company that recently disappeared, as we know. The first A-300 B4-200 equipped with Pratt and Whitney JT9D-59A engines, built for China Airlines (see AIR ET COSMOS, Nos 902 and 904), completed its first flight on 28 April. It will be delivered in June. And, at Toulouse, the 200th Airbus is now on the final assembly line, an A-300 B4 to be delivered in September to Egyptair. This airline had firm-ordered eight A-300 B4-200's with General Electric engines; it is already using five, two of which are being leased from Hapag Lloyd Flug. A complete A-310 airfoil, including the central spar, has been installed IABG [Industrial Plant Enterprise Inc/ test center at Ottobrunn, near Munich, to undergo fatigue tests there which are to start in July. These tests will continue over a period of approximately 3 years and will simulate more than 90,000 flights... . [Text] Paris AIR ET COSMOS in French 15 May 82 p 20] [COPYRIGHT: A. & C. 1982] 9399

FRANCE, UK DISCUSS AIRBUS, CONCORDE-- Transportation Minister Charles Fiterman met in Paris on 6 May with his British colleague Norman Lamont, secretary of state for industry, to discuss in particular the Airbus and Concorde dossiers. With regard to the Airbus program, after noting that the A-300 and A-310 captured 53 percent of the market for large airliners last year, the two ministers reviewed the progress being made in preparations for the launching of the A-320 project, "which appears to be" well suited to the future needs of the air transport industry in the medium-capacity category. This being the case, they decided to discuss in more detail with their partners the launching of the program. It is noted that the term "launching" appears twice in the official

communiqué, and observers think this terminology translates the positive spirit that dominated the discussions. As regards the Concorde, the ministers took cognizance of the reduction in expenses, requested continuation of this effort, examined the reports prepared by the officials of the two countries, and decided to submit the dossier to their respective governments. They will meet again in July to discuss these subjects further. [Text] [Paris AIR ET COSMOS in French 15 May 82 p 15] [COPYRIGHT: A. & C. 1982] 9399

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